

WHAT IS CLAIMED IS:

1. A semiconductor device comprising:
a substrate having a metal surface;
5 an insulating film formed on said substrate having said metal surface;
a pixel unit formed over said insulating film, said pixel unit comprising a
thin film transistor and a wiring connected to said thin film transistor; and
a storage capacitor constituted by said substrate having said metal surface,
said insulating film, and said wiring.
- 10 2. A semiconductor device according to claim 1, wherein said metal
surface of said substrate has a roughness of $1\ \mu\text{m}R_{\text{MAX}}$ or less.
3. A semiconductor device according to claim 1, wherein a radius of
15 curvature of a convex part existing in said metal surface of said substrate is $1\ \mu\text{m}$
or more.
4. A semiconductor device according to claim 1, wherein said substrate
comprises a stainless substrate.
- 20 5. A semiconductor device according to claim 1, wherein said
semiconductor device is a liquid crystal display device.
6. A semiconductor device according to claim 1, wherein said
25 semiconductor device is a light emitting device.
7. A semiconductor device according to claim 1, wherein said
semiconductor device is one selected from the group consisting of a portable
telephone, a video camera, a digital camera, a goggle type display, a personal
30 computer, a DVD player, an electronic book, and a portable information terminal.

8. A semiconductor device comprising:
a substrate having a metal surface;
an insulating film formed on said substrate having said metal surface;
5 a pixel unit formed over said insulating film, said pixel unit comprising a thin film transistor, a wiring connected to said thin film transistor, and a pixel electrode connected to said wiring; and
a storage capacitor constituted by said substrate having said metal surface, said insulating film, and said wiring.
- 10 9. A semiconductor device according to claim 8, wherein said metal surface of said substrate has a roughness of $1\ \mu\text{m}R_{\text{MAX}}$ or less.
- 15 10. A semiconductor device according to claim 8, wherein a radius of curvature of a convex part existing in said metal surface of said substrate is $1\ \mu\text{m}$ or more.
- 20 11. A semiconductor device according to claim 8, wherein said substrate comprises a stainless substrate.
12. A semiconductor device according to claim 8, wherein said semiconductor device is a liquid crystal display device.
- 25 13. A semiconductor device according to claim 8, wherein said semiconductor device is a light emitting device.
14. A semiconductor device according to claim 8; wherein said semiconductor device is one selected from the group consisting of a portable telephone, a video camera, a digital camera, a goggle type display, a personal
30 computer, a DVD player, an electronic book, and a portable information terminal.

15. A semiconductor device comprising:
a substrate having a metal surface;
a first insulating film formed on said substrate having said metal surface;
5 a pixel unit formed over said first insulating film, said pixel unit comprising a thin film transistor, a wiring connected to said thin film transistor, and a pixel electrode connected to said wiring, wherein said pixel electrode is formed on a second insulating film which covers said thin film transistor and a portion of said wiring; and
10 a storage capacitor constituted by said substrate having said metal surface, said insulating film, and said wiring.

16. A semiconductor device according to claim 15, wherein a surface of said metal substrate has a roughness of $1\ \mu\text{m}R_{\text{MAX}}$ or less.

15 17. A semiconductor device according to claim 15, wherein a radius of curvature of a convex part existing in a surface of said metal substrate is $1\ \mu\text{m}$ or more.

20 18. A semiconductor device according to claim 15, wherein said substrate comprises a stainless substrate.

19. A semiconductor device according to claim 15, wherein said semiconductor device is a liquid crystal display device.

25 20. A semiconductor device according to claim 15, wherein said semiconductor device is a light emitting device.

21. A semiconductor device according to claim 15, wherein said
30 semiconductor device is one selected from the group consisting of a portable

telephone, a video camera, a digital camera, a goggle type display, a personal computer, a DVD player, an electronic book, and a portable information terminal.

22. A semiconductor device comprising:

5 a metal substrate;

an insulating film formed on said metal substrate;

a pixel unit formed over said insulating film, said pixel unit comprising a thin film transistor, a wiring connected to said thin film transistor, and a pixel electrode connected to said wiring; and

10 a storage capacitor constituted by said metal substrate, said insulating film, and said wiring.

23. A semiconductor device according to claim 22, wherein said metal surface of said substrate has a roughness of $1\text{ }\mu\text{mR}_{\text{MAX}}$ or less.

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24. A semiconductor device according to claim 22, wherein a radius of curvature of a convex part existing in said metal surface of said substrate is $1\text{ }\mu\text{m}$ or more.

20 25. A semiconductor device according to claim 22, wherein said substrate comprises a stainless substrate.

26. A semiconductor device according to claim 22, wherein said semiconductor device is a liquid crystal display device.

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27. A semiconductor device according to claim 22, wherein said semiconductor device is a light emitting device.

28. A semiconductor device according to claim 22, wherein said
30 semiconductor device is one selected from the group consisting of a portable

telephone, a video camera, a digital camera, a goggle type display, a personal computer, a DVD player, an electronic book, and a portable information terminal.

29. A method of manufacturing a semiconductor device comprising the
5 steps of:
- forming a first insulating film on a substrate having a metal surface;
 - forming a semiconductor layer on said first insulating film;
 - forming a second insulating film on said semiconductor layer;
 - forming a gate electrode on said second insulating film;
 - 10 forming a third insulating film so as to cover said semiconductor layer and said gate electrode;
 - partly removing said third insulating film, thereby to expose a portion of said semiconductor layer and a portion of said first insulating film; and
 - forming a wiring line electrically connected to said semiconductor layer,
 - 15 and in contact with said portion of said first insulating film.

30. A method according to claim 29, wherein said metal surface of said substrate having said metal surface has a roughness of at most $1 \mu\text{m}R_{\text{MAX}}$.

- 20 31. A method according to claim 29, wherein a radius of curvature of a convex part which exists in said metal surface of said substrate having said metal surface is at least $1 \mu\text{m}$.

32. A semiconductor device according to claim 29, wherein said substrate
25 comprises a stainless substrate.

33. A semiconductor device according to claim 29, wherein said semiconductor device is a liquid crystal display device.

- 30 34. A semiconductor device according to claim 29, wherein said

semiconductor device is a light emitting device.

35. A method according to claim 29, wherein said semiconductor device is one selected from the group consisting of a portable telephone, a video camera,
5 a digital camera, a goggle type display, a personal computer, a DVD player, an electronic book, and a portable information terminal.

36. A method of manufacturing a semiconductor device comprising the steps of:

10 forming a first insulating film on a substrate having a metal surface;
forming a semiconductor layer on said first insulating film;
forming a second insulating film on said semiconductor layer;
forming a gate electrode on said second insulating film;
forming a third insulating film on said second insulating film and said
15 gate electrode;
partly removing said third insulating film and said second insulating film,
thereby to expose a portion of said semiconductor layer and a portion of said first
insulating film; and
forming a wiring line electrically connected to said semiconductor layer,
20 and in contact with said portion of said first insulating film.

37. A method according to claim 36, wherein said metal surface of said substrate having said metal surface has a roughness of at most $1\text{ }\mu\text{mR}_{\text{MAX}}$.

25 38. A method according to claim 36, wherein a radius of curvature of a convex part which exists in said metal surface of said substrate having said metal surface is at least $1\text{ }\mu\text{m}$.

39. A semiconductor device according to claim 36, wherein said substrate
30 comprises a stainless substrate.

40. A semiconductor device according to claim 36, wherein said semiconductor device is a liquid crystal display device.

5 41. A semiconductor device according to claim 36, wherein said semiconductor device is a light emitting device.

 42. A method according to claim 36, wherein said semiconductor device is one selected from the group consisting of a portable telephone, a video camera,
10 a digital camera, a goggle type display, a personal computer, a DVD player, an electronic book, and a portable information terminal.

 43. A method of manufacturing a semiconductor device comprising the steps of:

15 forming a first insulating film on a substrate having a metal surface;
 forming a semiconductor layer on said first insulating film;
 forming a second insulating film on said semiconductor layer;
 forming a gate electrode on said second insulating film;
 forming a third insulating film so as to cover said semiconductor layer and
20 said gate electrode;
 partly removing said third insulating film, thereby to expose a portion of said semiconductor layer and a portion of said first insulating film;
 forming a first wiring line electrically connected to said semiconductor layer, and in contact with said portion of said first insulating film;
25 forming a fourth insulating film so as to cover said first wiring line;
 partly removing said fourth insulating film, thereby to expose a portion of said first wiring line; and
 forming a second wiring line electrically connected with said first wiring line.

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44. A method according to claim 43, wherein said metal surface of said substrate having said metal surface has a roughness of at most $1\ \mu\text{m}R_{\text{MAX}}$.

45. A method according to claim 43, wherein a radius of curvature of a convex part which exists in said metal surface of said substrate having said metal surface is at least $1\ \mu\text{m}$.

46. A semiconductor device according to claim 43, wherein said substrate comprises a stainless substrate.

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47. A semiconductor device according to claim 43, wherein said semiconductor device is a liquid crystal display device.

48. A semiconductor device according to claim 43, wherein said semiconductor device is a light emitting device.

49. A method according to claim 43, wherein said semiconductor device is one selected from the group consisting of a portable telephone, a video camera, a digital camera, a goggle type display, a personal computer, a DVD player, an electronic book, and a portable information terminal.

50. A method of manufacturing a semiconductor device comprising the steps of:

forming a first insulating film on a substrate having a metal surface;
forming a semiconductor layer on said first insulating film;
forming a second insulating film on said semiconductor layer;
forming a gate electrode on said second insulating film;
forming a third insulating film on said second insulating film and said gate electrode;
partly removing said third insulating film and said second insulating film.

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thereby to expose a portion of said semiconductor layer and a portion of said first insulating film;

forming a first wiring line electrically connected to said semiconductor layer, and in contact with said portion of said first insulating film;

5 forming a fourth insulating film so as to cover said first wiring line:

partly removing said fourth insulating film, thereby to expose a portion of said first wiring line; and

forming a second wiring line electrically connected with said first wiring line.

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51. A method according to claim 50, wherein said metal surface of said substrate having said metal surface has a roughness of at most $1\ \mu\text{m}R_{\text{MAX}}$.

52. A method according to claim 50, wherein a radius of curvature of a
15 convex part which exists in said metal surface of said substrate having said metal surface is at least $1\ \mu\text{m}$.

53. A semiconductor device according to claim 50, wherein said substrate comprises a stainless substrate.

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54. A semiconductor device according to claim 50, wherein said semiconductor device is a liquid crystal display device.

55. A semiconductor device according to claim 50, wherein said
25 semiconductor device is a light emitting device.

56. A method according to claim 50, wherein said semiconductor device is one selected from the group consisting of a portable telephone, a video camera, a digital camera, a goggle type display, a personal computer, a DVD player, an
30 electronic book, and a portable information terminal.